T&D Recorder for Windows®

TR-5, TR-7xU

User's Manual

Thank you for purchasing our product.
Carefully read this instruction manual
before using this unit.

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2005.04 16004264170

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Software User Agreement

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What is T&D Recorder for Windows®?

◆ An Overview

T&D Recorder for Windows is a software program that enables you to easily make recording settings for our data loggers, download recorded data from the loggers, and then process that data into graphs, tables and /or save that data to files or print.Upon opening T&D Recorder for Windows, a launcher program will appear with several icons lined up. By clicking on an icon, a settings/communication display for the selected type of device or a graph display will appear.

In order to use the software, the following operational environment is necessary

OS	Microsoft Windows 98/Me Microsoft WindowNT 4.0（USB communication not possible） Microsoft Windows 2000/Xp
PC/CPU	IBM Compatible Pentium 90MHz or above USB Communication/Serial Communication（RS-232C D-Sub pin） possible
Memory	16MB or above
Hard Disk	4 MB or more of available space（more space necessary for data）
Monitor	VGA（SVGA（800×600）or above）/256 or more colors possible is necessary

◆ Basic Functions

● **Recording Settings**

Settings can be made for recording conditions such as channel name, recording interval, and recording mode. By making a recording start（date and time）setting in the main unit（s）, the unit（s）will begin recording at that time on that date.

● **Graph Display / Printing**

・Simultaneous Display of 8 Ch. of Data

It is possible to display up to 8 channels of downloaded data in 1 graph.

・Zoom-in on Data by Mouse

By simple mouse operations, you can easily zoom in and out on data as well as change the display.

・View the High, Low, and Average Calculations for any Specified Period

Make settings to specify the calculation range you desire and view the high, low and average value for that range in each channel displayed in the graph.

・Graph Printing

It is possible to print in full-color the graph as you see it on display.

● **Data List Display / Printing**

You can view the data displayed in the graph window as a list and then choose to print.

・View in Easy to Distinguish Colors

In the data list, the highest value will appear in red, the lowest in blue, and the average in pink.

・Printing the Data List

It is possible to print the entire list as displayed or to select pages for printing.

● **Creating Text File**

It is possible to convert the data for a specified range (time period) to common text file format (CSV type format), so that it can be exported to spreadsheet software such as Excel or Lotus.

● **Possible to use with a mixture of device types (TR-7U and TR-5)**

It is possible to process recorded data from a mixture of device types.

This manual has been written using ℃ as the standard unit of temperature. User's in the United States and elsewhere who would like to change the unit to Fahrenheit, can easily do so by making changes in the "Shift Unit" under "Editing the Graph".

Getting Started: The Basic Operations

TR-71U/TR-72U Series

Connecting the Unit to your Computer

Connect the USB cable and set up so that the data logger and your computer can commmuincate.

Installing the USB Device Driver

By installing the USB device driver, your computer will be able to recognize a TR-71U/72U unit when it is connected. For more details about how to install the driver, see the TR-71U/72U Hardware Manual.

Installing the USB Device Driver

After installing T&D Recorder for Windows®, the「TR-71U/TR-72U Quick Start Program」will automatically open each time you start up Windows.

Making Recording Start Settings

Before making Recording Start settings, make sure that your computer's date and time are correct. If your computer's date and time are incorrect it will have adverse effects on the starting time for recording.

Downloading Recorded Data

By making settings in [Detailed Settings] before downloading, you can specify whether or not you wish to display a graph upon downloading, as well as, specify file names for saving files.

NOTE:
Before making Recording Start settings, make sure that your computer's date and time are correct. If your computer's date and time are incorrect it will have adverse effects on the starting time for recording.

TR-5 Series

Installing the accompanying software

After installing T&D Recorder for Windows, each time Windows is opened the [TR-71U/TR-72U Quick Start Program] will automatically be activated. If you do not wish to use TR-71U/TR-72U either close or delete the Quick Start program. (see page 6 for details).

Connect the main unit to the computer

Place the data logger in a position to enable communication with your computer.

Serial Port Settings

Making Recording Start Settings

Before making Recording Start settings, make sure that your computer's date and time settings are correct. If the date and time settings are incorrect, it will have an effect on the recording start time.

Download Recorded Data

By making detailed settings before downloading data, it is possible upon the downloading of data to automatically open the Graph / Event Viewer and / or assign file names for saving.

NOTE:
Before downloading data, make sure that your computer's date and time settings are correct. If the date and time settings are incorrect, it will have an effect on the downloading dateand time.

Installing the Software

◆ Is Window®s operating properly?

If Windows is not operating properly, T&D Recorder for Windows may not be installed correctly or it may not operate properly.

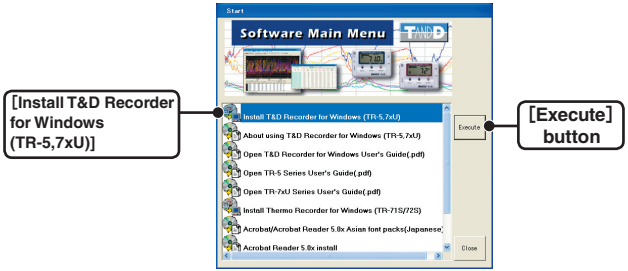
◆ Please quit all other applications.

If other programs are open, please close and quit all of them, making sure to quit all Quick Start programs such as a virus checker.

1 Open Windows.

2 Place the accompanying CD-ROM into your CD-ROM drive. In a few seconds, the「Install Program」window will appear.

- If that window does not automatically open, please open it by double clicking the CD-ROM icon in「My Computer」on your desktop.


[Install T&D Recorder for Windows (TR-5,7xU)]
Start
Software Main Menu
Install T&D Recorder for Windows (TR-5,7xU)
About using T&D Recorder for Windows (TR-5,7xU)
Open T&D Recorder for Windows User's Guide(.pdf)
Open TR-5 Series User's Guide(.pdf)
Open TR-7xU Series User's Guide(.pdf)
Install Thermo Recorder for Windows (TR-71S/72S)
Acrobat/Acrobat Reader 5.0x Asian font packs(Japanese)
Acrobat Reader 5.0x install
Execute
Close
[Execute] button

3 Select [Install T&D Recorder for Windows] and click the [Execute] button to start the installation.

4 To continue installation, follow the directions as they appear. After installation has been completed the program「T&D Recorder for 「Windows」should appear in the [Start] Menu and the [TR-71U/72U Quick Start] will be registered in the [Start] Menu's [Start up] Program.

◆ What is TR-71U/TR-72U Quick Start?

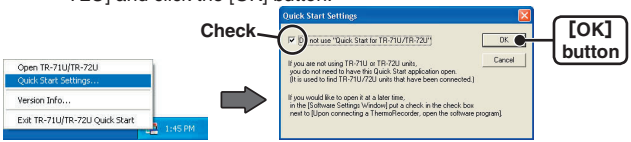
The「TR-71U/TR-72 Quick Start」is activated automatically each time you open Windows. It searches for and detects any USB connected TR-71U/72U unit and upon detection automatically opens the TR-71U/72U software program (Settings Display).

● Disabling the auto activation of the TR-71U/TR-72U Quick Start

【From the Taskbar】

1 Click the Quick Start icon in the task tray and click on [Quick Start Settings].

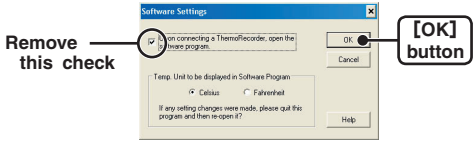
2 Place a check next to [Do not use Quick Start for TR-71U/TR-72U] and click the [OK] button.


Check
[OK] button
Open TR-71U/TR-72U
Quick Start Settings...
Version Info...
Exit TR-71U/TR-72U Quick Start
1:45 PM
Quick Start Settings
Do not use "Quick Start for TR-71U/TR-72U"
OK
Cancel
If you are not using TR-71U or TR-72U units, you do not need to have this Quick Start application open. (It is used to find TR-71U/72U units that have been connected.)
If you would like to open it at a later time, in the [Software Settings Window] put a check in the check box next to [Upon connecting a ThermoRecorder, open the software program].

【From the Software】

1 Click the TR-71U/72U icon in the Main Window. Then, in the Settings Display, under the [Settings] Menu select [Software Settings].

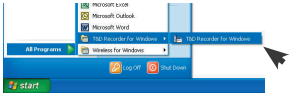
2 Remove the check from [Upon connecting a Thermo Recorder, open the software program], and click the [OK] button.



Using the Software

◆ How to Open

To open, in the Windows Start Menu, under Programs, click [T&D Recorder for Windows®].



◆ Main Window

Upon opening [T&D Recorder for Windows], a launcher program will appear with several icons lined up, By clicking on an icon, a graph display or a settings/ communication display for the selected type of device will appear.

〔Menu Bar〕

The menus along the bar contain various helpful commands. From each menu, you can select commands to view or make settings for each of the device types.

[Setting] Menu : Date Display Format Settings

The date format chosen will be applicable for all sections of the software including graphs and setting displays.

1 In the [View] Menu, select "Date Display Format Settings".

2 Check either "Month/Date/Year" or "Date/Month/Year".

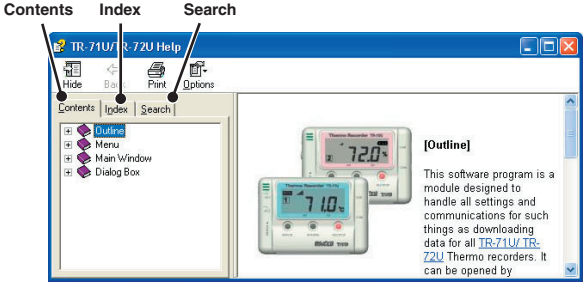
3 By clicking the [OK]button, the setting will be completed.

〔Icons〕

By clicking an TR-71U/72U icon, you can open the Settings and Communication Display. You can also open the Settings and Communication Display from the [Start] Menu in the Menu Bar.

◆ For more detailed assistance on using the software, see the Help menu contained in the software.

● By clicking on [Help] in the Menu Bar and then [Search by Topic] you will find three tabs (Contents, Index, and Search) to click on to help you search for the topic you are unsure about or have questions about.



【Contents】

By clicking on the classified topic mark you will find explanations concerning that topic.

【Index】

Select a keyword from the keyword list and by clicking the [Display] button, the explanation for that topic will appear.

【Search】

Enter the keyword you wish to search for and click [Start Search]. All topics containing that keyword will be displayed. Select a topic and click the [Display] button to display the explanation for that topic.

● By clicking on the [Help] button in any dialog box, the explanation for that dialog box will appear.

● By clicking the Toolbar in the Graph Display, you can then view explanations for menus, icons, and objects in the Main Window by clicking the question mark arrow on those items.

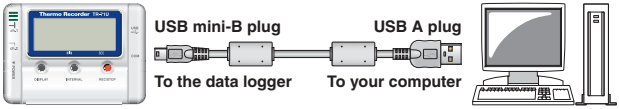
When using TR-7xU

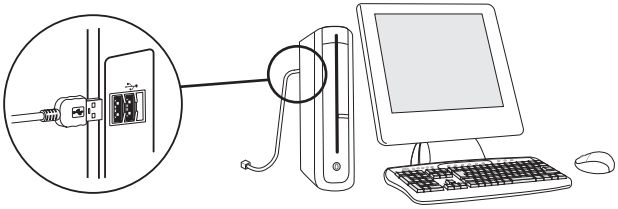
◆ Connecting the Data Logger to your Computer

Connect the TR-71U / 72U unit to your computer with the USB Communication Cable (US-15)

USB Port Mark

The USB cable is a USB A plug ⇔ USB mini-B plug type.
Please connect to a place with this kind of mark.





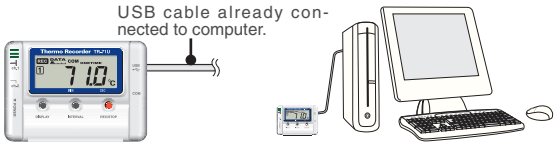
※ It is necessary to install a USB device driver. Please see the Hardware User's Manual for details about installation.

- To ensure proper communication, make sure that the USB cable connection is secure.

- This software is designed to operate TR-71U / TR-72U units with USB connections and cannot operate the units via serial communication cables. If you wish to use serial cables, please install [Thermo Recorder for WINDOWS 4.11 (E)] from the CD-ROM menu and treat the units as TR-71S / 72S units.
- For more details about the use of [Thermo Recorder for WINDOWS 4.11 (E)] please refer to the PDF file contained in the CD-ROM.

◆ Connecting the USB cable to the TR-71U/72U unit.

Connect the USB cable that is connected to your computer to the TR-71U/72U unit.



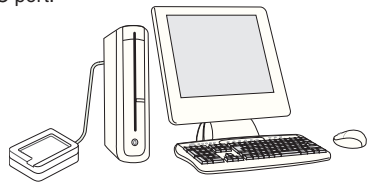
- To communicate with a TR-71U/72U unit via serial communication cable, please use our optional serial communication cable TR-07C.
- If you are using TR-50C connect using the serial cable (RS-232C).
- If the place of connection is incorrect, communication will not occur.
- To ensure proper communication, make sure that the communication cable connection is secure.

When using TR-51A / 52 / 51

◆ Connecting the Data Logger to your Computer

Use the TR-50C communication port to transfer data via optical communication.

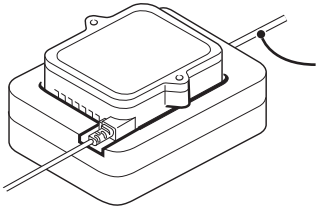
1 Connect the serial cable that is connected to your computer to the TR-50C port.



2 You can transfer data by placing the data logger face down on the TR-50C communication port.

3 Connect the serial cable that is connected to your computer to the TR-50C port.

4 Place face down on the TR-50C.



● RTR-51/52/53・RVR-52 も TR-50C を用いて通信できます。

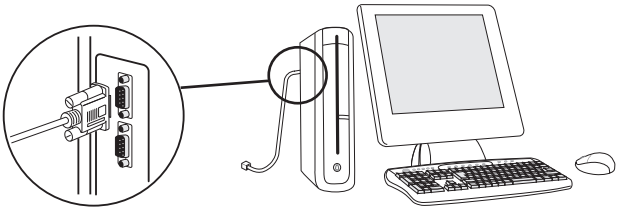
Serial Port Settings

When wishing to carry out communication using a serial communication cable, please make serial port settings. Set which serial port you would like to use to communicate with the data logger. There are two methods to make the settings: [Auto-Detect] and [Select Serial Port].
Connect the serial cable to port you wish to use and then connect it to the logger.

If you wish to use the same COM Port for several types of devices.
Place a check next to <Set as Common Port for all Devices> and click [OK] and port settings can be done for all devices in one step.

Examples of Serial Port Marks

The communication cable jack is a D-Sub 9 pin male type.
Please connect to a place with this kind of mark.

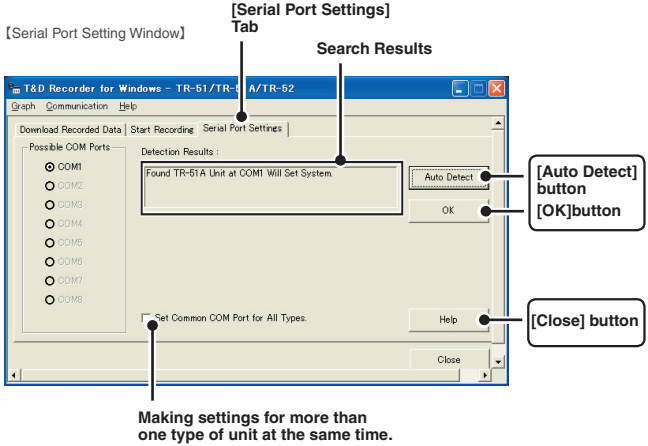


- If the place of connection is incorrect, communication will not occur.
- To ensure proper communication, make sure that the communication cable connection is secure

Open the Graph display by clicking the icon [Temp/Humid Graph] in the Main Window.

◆ Using Auto Detect

【Serial Port Setting Window】



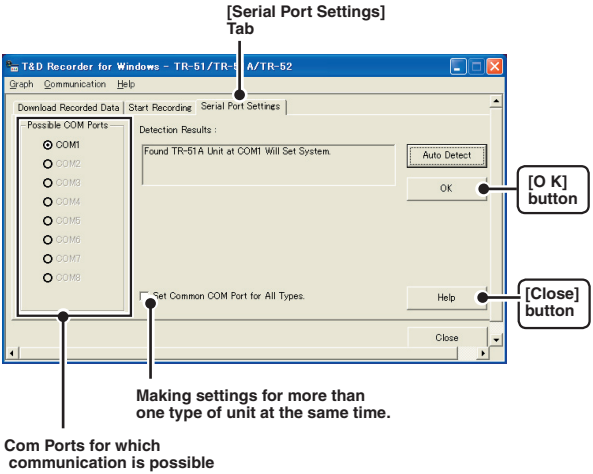
【Main Window】

1 From the Main Window, open the Settings and Communication window for the connected data logger, and click on the [Serial Port Settings] Tab.

2 Click the [Auto Detect] button and searching will begin.

3 After the search has finished, a Search Results message will appear.
By clicking the [OK] button the setting will be finalized as the port to which the data logger is connected.

◆ Select Serial Port



1 Open the Settings and Communication window for the data logger you are using, and click on the [Serial Port Settings] Tab.

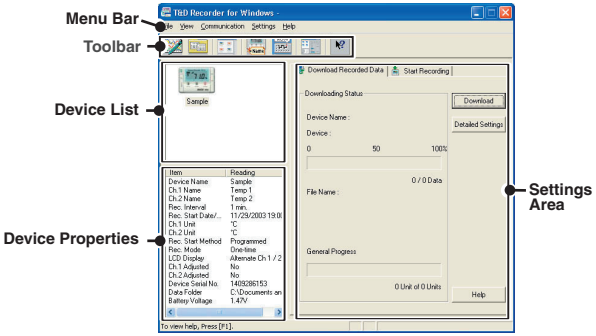
2 Check the COM Port you wish to use for T&D Recorder for Windows in the [Possible COM Ports] list.

3 By clicking the [OK] button the setting will be finalized.

> If Auto detection does not work properly, please see [Troubleshooting] for advice.

TR-71U/72U：Display Names and Functions

◆ The Main Window



【Menu Bar】

The menus along the bar contain various helpful commands. From each menu, you can select commands to view or make settings for each of the device types.

【Toolbar】

The commands that are used most frequently have been arranged as buttons.

【Device List】

TR-71U/72U units connected to the computer by USB cable will be displayed as icons here. In order to make recording settings or download recorded data, it is necessary to first select a device from the device list. The type of icon used in the display can be changed in the [View] Menu.

【Device Properties】

Information about the device selected in the device list will be displayed here. If more than one data logger has been selected no information will be displayed.

【Settings Area】

By clicking on the [Download Recorded Data] tab or the [Start Recording] tab, you can open the settings display for that function.

TR-71U/72U：Starting Recording

◆ Connect a TR-71U/72U unit to your computer so that communication can occur.

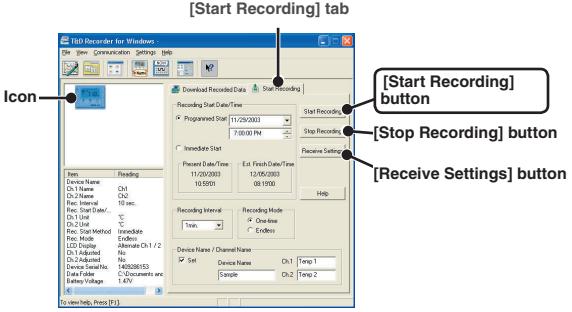
※ Please see p 9 -13 for more information about how to connect.
The first time you connect it is necessary to install the USB device driver. For information about how to install the device driver please see the Hardware User's Manual.

◆ Setting the Recording Conditions.

1 In the Main Window, click on the [TR-71U/72U] icon.

2 Click on the icon of the data logger you wish to make settings for.

3 Click the [Start Recording] tab, and make the necessary settings.



● Recording Start Date/Time

<Selections:Programmed Start / Immediate Start>
Programmed Start: recording will start on the specified date and time.
Immediate Start: recording will start immediately upon completion of settings.

● Recording Interval

<Selections:1,2,5,10,15,20,30 seconds and
1,2,5,10,15,20,30, 60 minutes>
Click on ▼ and select the desired recording interval from the drop-down list.

● **Recording Mode <Selections:One-time/Endless>**

One-time:

When the possible number of recorded data readings(8000 readings per channel) is reached, recording stops.

Endless:

When the possible number of recorded data readings is reached, the oldest data is overwritten and recording continues.

● **Device Name/Channel Name**

Make settings for each data logger concerning the device names and channel names.

Device Name: Up to 16 characters

Channel Name: Up to 8 characters

4 After having completed the recording conditions settings, transmit the settings to the data logger by clicking the [Start Recording] button.

5 After the transmission has been completed, a message will appear; click the [OK] button to activate the settings.

● **[Stop Recording] button**

Clicking this button will stop a recording session already in progress.

● **[Receive Settings] button**

Clicking this will allow you to view recording conditions settings and recording status information from the data logger.

TR-71U/72U：Downloading Recording Data

◆ Connect a TR-71U/72U unit to your computer so that communication can occur.

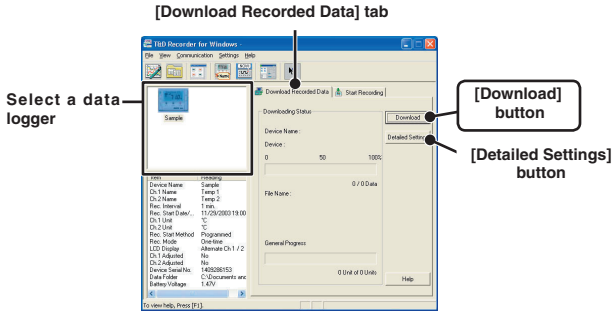
※ Please see p 9-13 for more information about how to connect.
The first time you connect it is necessary to install the USB device driver. For information about how to install the device driver please see the Hardware User's Manual.

◆ Downloading Recorded Data.

1 In the Main Window, click on the [TR-71U/72U] icon.

2 Click on the icon of the data logger you wish to download data from.

3 Click the [Download Recorded Data] tab



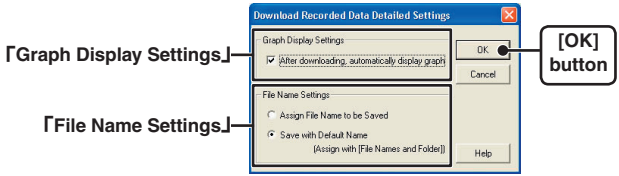
4 If you wish to automatically display the graph upon the completion of downloading, click the [Detailed Settings] button to make such a setting.
※ For more information about Detailed Settings see page 21.

5 Click the [Download] button to begin downloading data.

6 After downloading has been completed a graph will be displayed.

● **[Detailed Settings] button**

Make settings about how to process downloaded recorded data.



〔Graph Display Settings〕

By checking here, the graph for the downloaded data will automatically appear after downloading is completed.

Up to 8 channels of data can be simultaneously displayed.

NOTE: If there are more than 8 channels of data, that data cannot be displayed automatically and must be opened from the data file.

〔File Name Settings〕

You can choose to save downloaded data using a default file name or by assigning a name each time.

1 Choose the type of processing you desire.

2 By clicking the [OK] button the setting will be completed.

※ You can specify the type of default file name under [File]– [File Names and Folders].

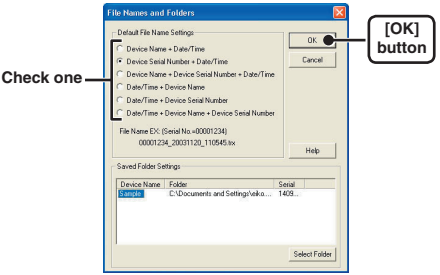
◆ [File] Menu : [Open Temp/Humidity Graph]

Opens the Temperature / Humidity Graph

◆ [File] Menu : [File Names and Folders]

Specify how you wish the files to be named upon downloading recorded data. Also you can select in which folder to save data for each device.

【Default File Name Settings】



1 Check which type of file name you wish to save data.

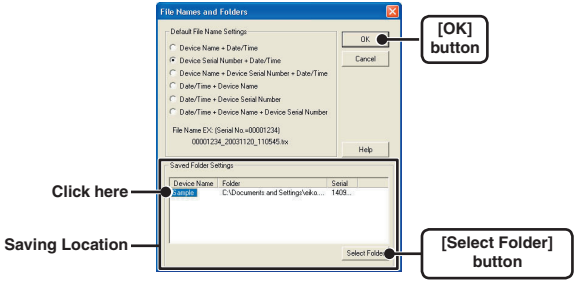
Example:
Device Name:Refrigerator/Serial No.:00001234/Date and Time:2003/05/12(yyyy,mm,dd)at 14:30:15/with Data Format Extension:TRX

- Device Name+Date/Time : Refrigerator_20030512_143015.trx
- Serial Number+Date/Time : 00001234_20030512_143015.trx
- DeviceName+SerialNumber+Date/Time : Refrigerator_00001234_20030512_143015.trx
- Date/Time+Device Name : 20030512_143015_Refrigerator. Trx
- Date/Time+Serial Number : 20030512_143015_00001234.trx
- Date/Time+Device Name+Serial Number : 20030512_143015_Refrigerator_00001234.trx

2 By clicking the [OK] button, the settings will be completed

【Folder Settings】

Assign a saving location for the data file.



1 The TR-71U/TR-72U connected by USB cable to your computer will appear in the list.

2 Click the name of the device and then click the [Select Folder]button.

3 The [Browse Folders] dialog box will appear where in you can select the folder into which you wish to save the data, then click [OK].

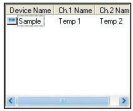
4 A [Data Folder] will then appear under Device Properties in the Main Window.

The default setting will create and save data to a folder with the device's serial number in the folder where T&D Recorder for Windows was installed.

◆ [View] Menu : Large Icon/Small Icon

Changes the icon size in the Device List between large and small.

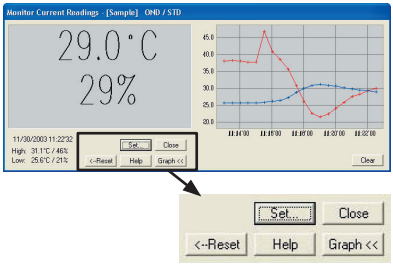
《Large Icon》

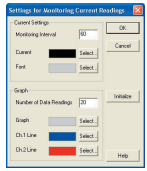


《Small Icon》

◆ [Communication] Menu : Monitor Current Readings

You can monitor at set intervals the current readings of data logger or loggers selected from the device list and have those readings displayed.





《**Settings Display**》

[Settings]button :
This opens a window where settings can be made for the display colors and the monitoring interval for current readings.

[Close]button :
Quit the Monitoring of Current Readings

[Reset]button :
Click to reset the display for highest and lowest measurements; the new display will show highest and lowest measurements from the time of resetting.

[Graph]button :
Click this to hide or view the graph.

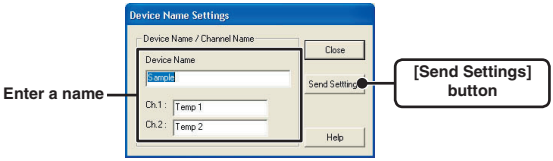
[Clear]button :
Clicking this will clear the graph and a new graph will be drawn from that point.

◆ [Communication] Menu : Search for TR-71U / TR-72U

If a TR-71U or TR-72U is connected, but does not show up in the Device List, click this to search for Thermo Recorders by scanning the USB ports.

◆ [Settings] Menu : Device Name Settings

Settings can be made for Device Names and Channel Names.



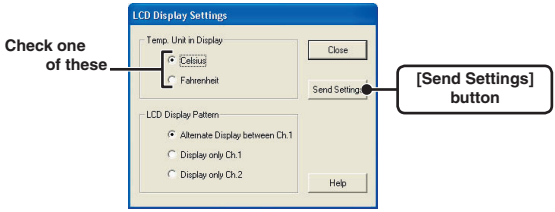
1 Enter a name.
- Device Name: up to 16 characters
- Channel Name: up to 8 characters.

2 By clicking the [Send Settings] button, the changes will be completed.

◆ [Settings] Menu : LCD Display Settings

Settings can be made for the Thermo Recorder's LCD display, such as, changing the temperature unit and turning the display on or off.

【Temp Unit in Display】

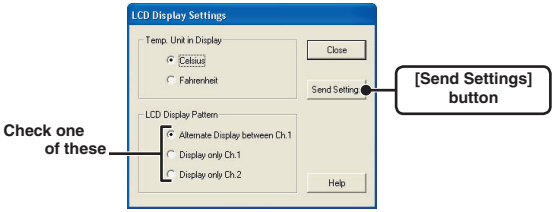


1 Check either Celsius(℃) or Fahrenheit(° F).

2 By clicking the [Send Settings] button, the changes will be completed.

【LCD Display Pattern】

You can select the LCD display from 3 patterns: Alternate display between Ch. 1 and Ch. 2, Display Ch. 1 only, or Display Ch. 2 only.



1 Check one of the patterns.

2 By clicking the [Send Settings] button, the changes will be completed.

◆ [Settings] Menu : Adjustment

By setting adjustment values beforehand, you can record and display the post-adjusted measurement values. You can choose from two adjustment methods: 1-point and 2-point. Adjustment will be carried out using an adjustment equation of Y＝aX＋b; where X is the pre-adjusted measurement value and Y is the post-adjusted value.

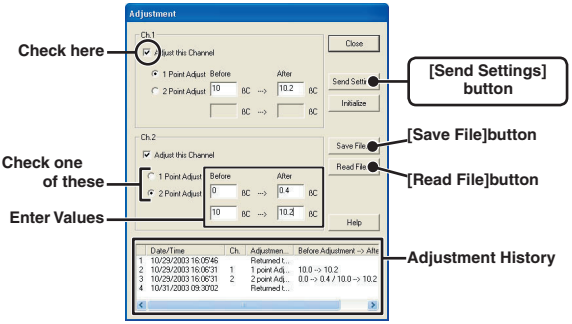
● Rough Guidelines for Adjustment

1 point Adjustment: Use when measuring in a range of ± 20℃ .
2 point Adjustment: Use when measuring in a wide range.

NOTE:

- When adjusting at 2 points, make sure the difference in points is at least 10℃ .
- When measuring in a wide range and adjusting at 2 points, make sure that the adjustment values reflect the range you are measuring.
- We cannot guarantee that after carrying out adjustment the measuring accuracy will improve for all measuring ranges.

1 Check the channel you wish to adjust.



2 Check either [1 Point Adjustment] or [2 Point Adjustment].

【1 Point Adjustment】

This adjustment method changes only the offset (b) where the slope (a) is considered 1.

For example, TR-71U is measuring 10℃ , but the standard says the actual measurement should be 10.2℃ . Enter 10 in the Before Adjustment box and 10.2 in the After Adjustment box. The conversion equation will be Y＝X＋0.2 and for all measurements an adjustment to the offset of +0.2 will be made.

【2 Point Adjustment】

The adjustment equation will be calculated from two points: the slope(a) and the offset(b).

For example, the TR-71U reads 0℃ when the standard thermometer reads 0.4℃ , and TR-71U reads 10℃ when the standard says the true measurement is 10.2℃ . In this case the slope(a) is 10.2-0.4/10-0 = 0.98. The offset is 0.4, so the conversion equation becomes Y＝0.98X＋0.4. The range of the slope is 0<a<=2. Entries are valid to one decimal point, but after calculation up to four digits are valid for the slope and offset.

3 Enter the adjustment values.

4 By clicking the [Send Settings] button, the adjustment settings will be completed.

● The data logger can store up to 4 adjustment values, the adjustment history will display up to 4 channels at one time.

[Save File] button:

Assign a name to the adjustment setting values and save them to a file.

[Read File] button:

Read adjustment setting values from a saved file.

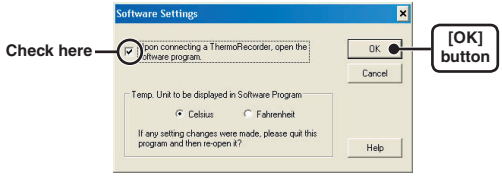
◆ [Settings] Menu : Software Settings

General software settings for TR-71U/TR-72U can be made here.

【Upon connecting a Thermo Recorder, open the Software Program】

This setting opens the software program upon the connection of a TR-71U/TR-72U unit via USB cable. If the setting is ON, the Quick Start Program will periodically communicate with the device driver and upon the detection of a USB connection will open the main software program.

1 Place a check next to [Upon connecting a Thermo Recorder, open the Software Program].

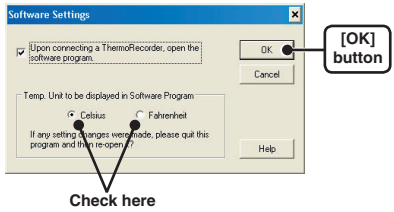


2 Click [OK] to complete the setting.

【Temp. Unit to be displayed in Software Program】

Select whether to use Celsius or Fahrenheit as the displayed unit of temperature when monitoring current readings and using the adjustment function.

1 Check either unit of temperature (Celsius or Fahrenheit).



2 Click [OK] to complete the setting.

3 After completing settings, please close the TR-71U/72U program and reopen it to make settings effective.

TR-51A/52：Recording Start

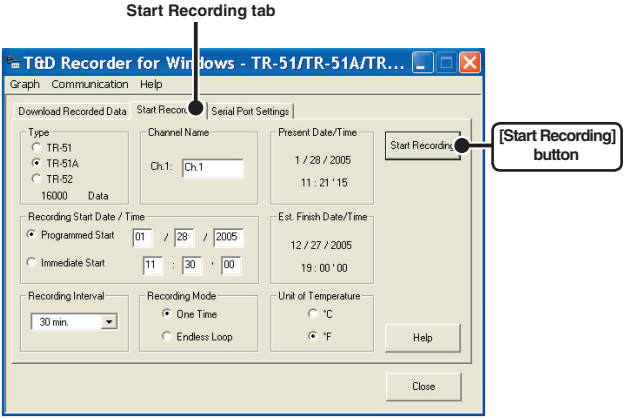
◆ Connect the TR-51A/52 to your computer to enable communication.

See p11 for details about how to connect.

◆ Set the Recording Conditions

1 In the Main Window, click the [TR-51A/52] icon.

2 Click the [Start Recording] Tab and make any necessary settings.



● **Device Type < Select: TR-51 / 51A / TR-52>**
Select depending on the device you wish to make settings for.

● **Channel Name**
Channel names can be entered with up to 8 letters.

● **Recording Start Date / Time**
<Select: Programmed Start / Immediate Start>
Programmed Start: Recording will begin on the day and time entered.
Immediate Start： Recording will begin as soon as settings are completed.

● **記録間隔 < 選択値：1.2.5.10.15.20.30 秒 1.2.5.10.15.20.30.60 分 >**

By clicking ▼ you can select from the recording interval list.

※ TR-51/51A cannot be set using seconds.

● **Recording Mode: <Select from: One-time / Endless>**

One-time: When the number of readings has reached 16,000, the unit display will read FULL and recording will automatically stop.

Endless: When the number of readings reaches 16,000, the next one will overwrite the oldest or first reading.

※ TR-51 は、予約によるエンドレス記録の設定はできません。

● **Temperature Unit <Select from: Celsius [℃] or Fahrenheit [°F] >**

Change the display of temperature on the data logger between [℃] and [°F] TR-51 cannot display readings in Fahrenheit. Readings can only be displayed in Celsius.

3 After making all the desired settings, click the [Start Recording] button to transmit them.

4 After transmission has been completed the communication result will appear. By clicking [OK], the set-up process will be finished. By clicking [OK], you can close the window.

TR-51A/52：Downloading Recorded Data

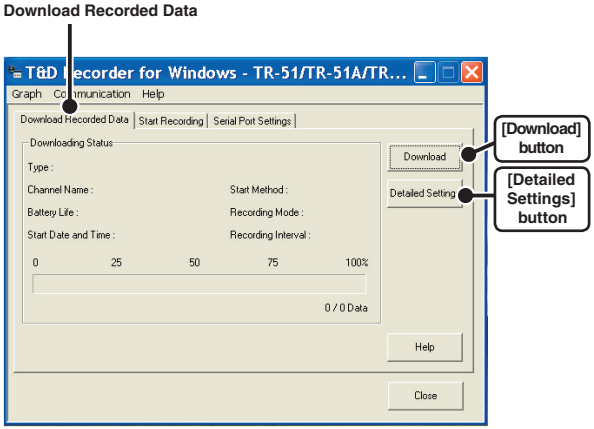
◆ Connect the TR-51A/52 to your computer to enable communication.

See p11 for details about how to connect.

◆ Downloading Recorded Data

1 In the main window, click the [TR-51A/52] icon.

2 Click on the [Download Recorded Data] tab.



3 If you wish to automatically view the graph after downloading, click the [Detailed Settings]and make the appropriate detailed settings.

See p. ??? for more info about [Detailed Settings]

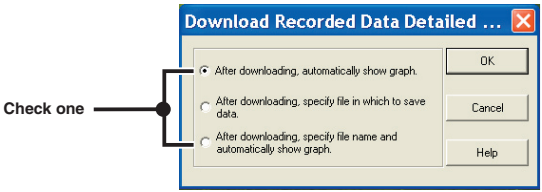
4 Click the [Download] button to start downloading.

5 After downloading has been completed, the graph will be displayed.

● **[Detailed Settings] Button:**
You can make settings for the processing of the downloaded recorded data.

1 Select the desired processing method.

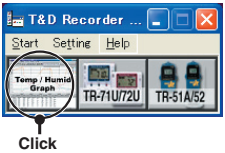
2 Click [OK] button to complete the setting.


Download Recorded Data Detailed ...
Check one
After downloading, automatically show graph.
After downloading, specify file in which to save data.
After downloading, specify file name and automatically show graph.
OK
Cancel
Help

Temperature / Humidity Graph

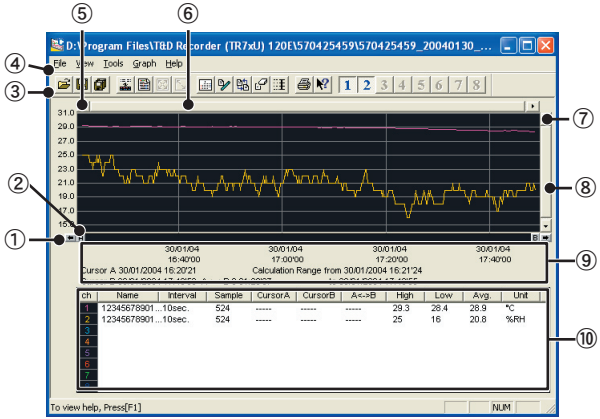
◆ How to Open

- Open the Graph display by clicking the icon [Temp/Humid Graph] in the Main Window.



- Open by selecting [Open Temp/Humidity Graph] in the [Graph] Menu of the TR-71U/72U・TR-51A/52 Settings and Communication Window
- If you have checked [After downloading, automatically display graph] in the detailed settings, the graph program will automatically open.

◆ Display Names and Functions



① A and B Cursor Movement Buttons

By clicking the arrow buttons, you can simultaneously move the A/B cursors.

② A and B Cursor Buttons

Click and drag the A or B button to move the cursor to the left or right.

③ Toolbar

Buttons appear for frequently used commands.

④ Menu Bar

Click on the desired menu in the Menu Bar to set or display each function from which you can choose from an array of commands.

⑤ Button for Moving Horizontal Axis

The time axis moves by clicking these arrow buttons.

⑥ Horizontal Gauge Bar

By dragging the gauge you can move left and right to the data you want to be displayed.

⑦ Button for Moving Vertical Axis

The vertical axis moves up or down by clicking these arrow buttons.

⑧ Vertical Gauge Bar

By dragging the gauge you can move up and down to the data you want to be displayed.

⑨ A and B Cursor Position Information

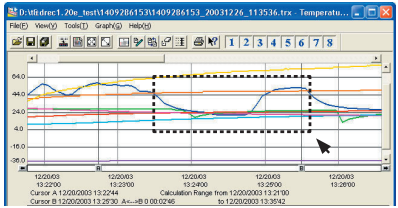
The approximate date and time for the A and B cursor positions and the time difference between the A cursor and the B cursor is displayed.

⑩ Channel Info List Display

The detailed data info for each channel 1 to 8 is displayed below the Graph Display.

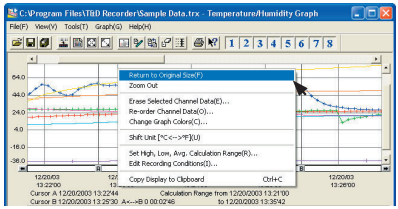
● Zoom in Using the Mouse

With the left button drag the mouse to outline the area you want to zoom in on.



● Menu Display Using the Mouse

By right clicking on the graph, the Menu will be displayed.

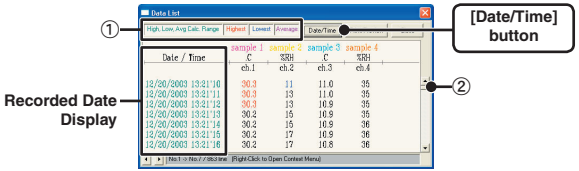


◆ Data List Display : From the [View] Menu

This is a list of the data that was displayed in graph form.

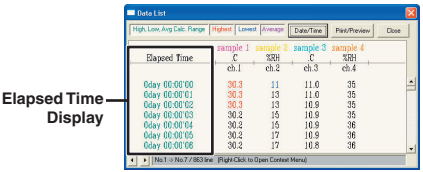
● [Date/Time]Button:

By clicking this button, you can shift the display between the recorded date and the amount of elapsed time since recording started.



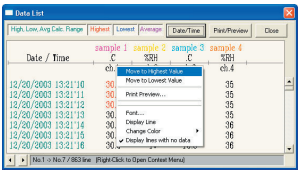
① The highest value is in RED, lowest is in BLUE, and the average is in PINK.

② Scroll Bar : By dragging it up and down you can move to the data you want.



● Menu Display Using the Mouse

By right clicking on the list, the Menu will be displayed.



Graph Maintenance

◆ Changing the Method of Graph Display

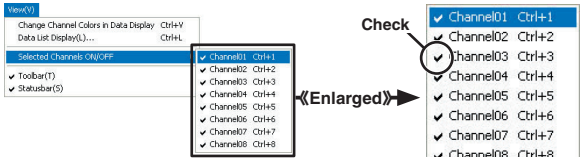
● Changing graph display colors : From the [View] Menu

You can change the letters used in the data list display for each channel between monochrome and channel color.

● Selected Channels ON/OFF : From the [View] Menu

1 By moving the mouse to [Selected Channels ON/OFF], the channel numbers are displayed.

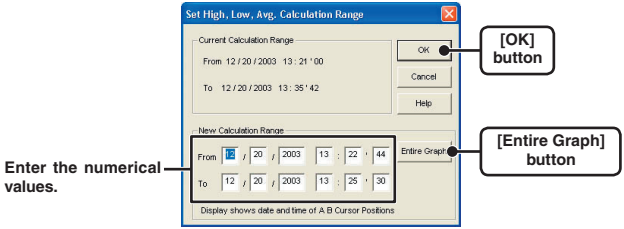
2 Click the channel number you wish to view or hide.



※ The same operation can be done by clicking on the channel number icons in the Toolbar.

● Set High, Low, Average Calculation Range : From the [Tools] Menu

1 Set the calculation range in the [Set High, Low, Avg. Calculation Range] box.

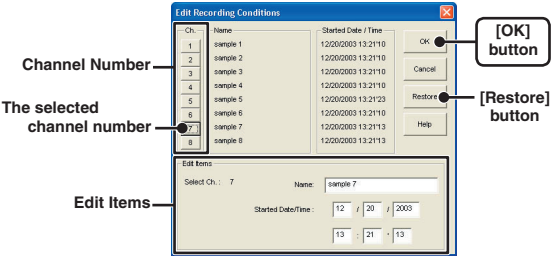

Set High, Low, Avg. Calculation Range
Current Calculation Range
From 12/20/2003 13:21'00
To 12/20/2003 13:35'42
OK
Cancel
Help
New Calculation Range
From 12 / 20 / 2003 13 : 22 ' 44
To 12 / 20 / 2003 13 : 25 ' 30
Entire Graph
Display shows date and time of A B Cursor Positions
[OK] button
[Entire Graph] button
Enter the numerical values.

● By clicking the [Entire Graph] button, the dates and times for the entire graph will be displayed.
● If in the graph display, you place the A cursor at the position for the beginning of the calculation range and the B cursor at the end of the range, those dates and times will appear as the new range in the [Set High, Low, Average Calculation Range] Display when it is opened.

2 By clicking the [OK] button, the high, low, and average values for each channel of data in the list will be changed. In the graph display, the data for the calculation range that you have set will be displayed.

● Edit Recording Conditions : From the [Tools] Menu

1 By clicking the [Ch.] button of the channel you wish to edit, the [Name] and [Started Date/Time] in the "Edit Items" display will show info for that channel number.



● Name: Up to 32 letters can be entered.
● Starting Date/Time: The month, day, year, hour, minute and second can be changed.

2 By clicking the [OK] button after changing, the setting will be completed.

● If you wish to continue to change other channels, repeat the process as in 1.

※ The [Restore] button is only effective while making changes. After clicking the [OK] button the settings cannot be restored to the original settings.

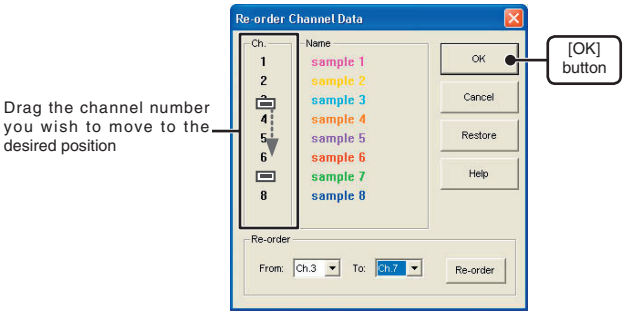
● Re-order Channel Data: From the [Tools] Menu

You can re-order the data during graph display.

There are two methods to use when re-ordering channels: [Re-order by Dragging a Channel Number] and [Specify the Channel Numbers to be Moved].

【Re-order by Dragging a Channel Number】

Drag the channel number you wish to move to the newly desired channel number position and drop it.

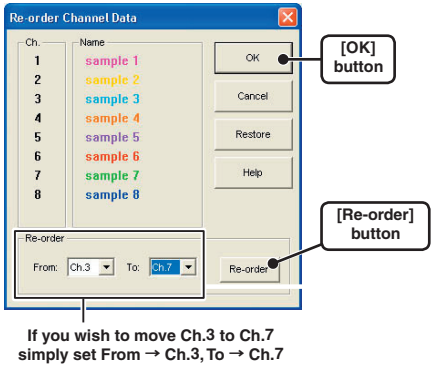


【Specify the Channel Numbers to be Moved】

1 Specify the channels to be moved From:(original position) To:(desired position).

2 Click[Re-order]button to complete the re-ordering process.

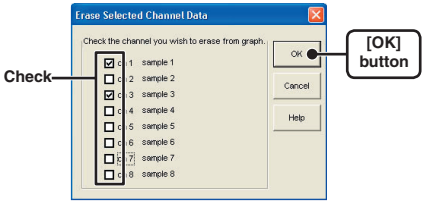
※ The [Restore] button is only effective while making changes. After clicking the [OK] button the settings cannot be restored to the original settings.



● **Erase Selected Channel Data:From the [Tools] Menu**

1 Put a check on the channel number you wish to erase.

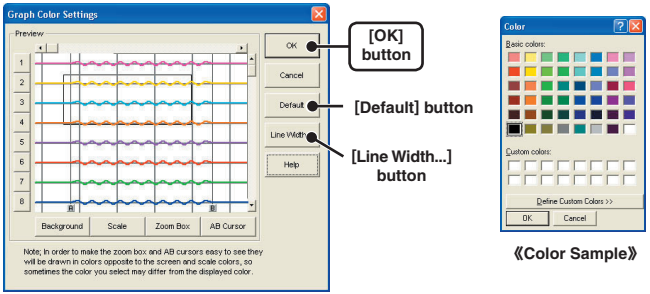
2 By clicking on the [OK] button, the deletion will be completed.



● **Shift Unit (℃ / ゜F): From the [Tools] Menu**

By clicking on [Shift Unit(℃ / ゜F)], you can automatically change the temperature unit scale in the graph display and in the channel info list.

● **Change Graph Colors: From the [Tools] Menu**



《Color Sample》

1 Click the channel number of which you wish to change the color.

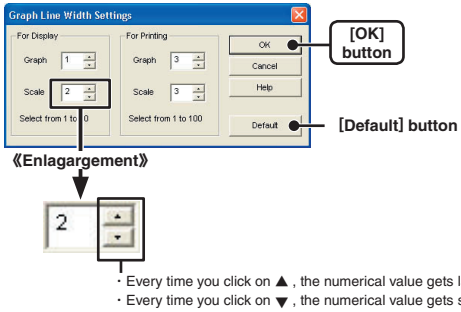
2 By clicking each button, color samples will be displayed. Choose the color you want and click the [OK] button.

3 After confirming the color, by clicking the [OK] button the change will be completed.

※ By clicking the [Return to Default] button, you will return to the color settings when the software was opened.

【Graph Line Width Settings】

Change the width of the data lines and the scale lines.



※ By clicking the [Default] button, you will return to the color settings when the software was opened.

● Copy Display to Clipboard : From the [Tools] Menu

By clicking [Copy Display to Clipboard], you can copy the currently displayed window to the clipboard and make use of the graph by pasting to other software.

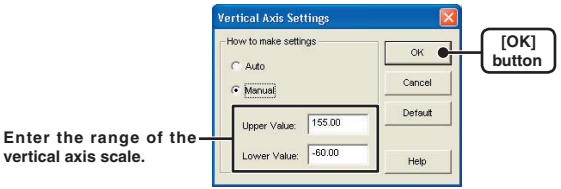
◆ Operating the Graph : [Graph] Menu

- **Return to Original Size**
  Clicking here will return the graph to its original size.
- **Zoom In / Zoom Out**
  Zooms in or out one step at a time
- **Move Cursor Right / Left**
  Simultaneously move the AB Cursors to the right or left.
- **Move Graph Right / Left**
  Move the Graph Display to the right or left.
- **Move Graph Up / Down**
  Move the Graph Display up or down.
- **Vertical Axis Settings (AUTO in Default Settings)**
  Set the vertical axis scale (temperature)

1 Check either [Auto] or [Manual].

AUTO: The vertical axis will automatically be changed according to the values of the data.

MANUAL: You can set the upper and lower values of the vertical axis scale.



2 Click [OK] to complete the settings.

Saving Recorded Data

If you have clicked [Display the graph after downloading recorded data], and you make any changes to the data after displaying, make sure to save those changes if necessary.

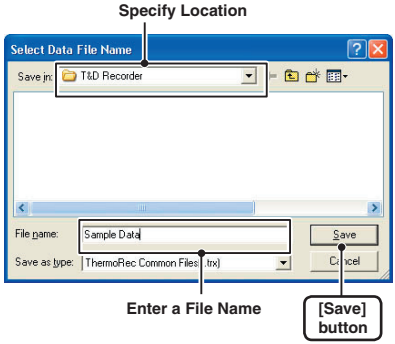
◆ 3 Ways to Save Files

- **In the [File] Menu, select [Overwrite All Data]**
  Will save any changes to file without changing File Name and Saving Location. The same operation can be carried out from [Save] in the Toolbar.
- **In the [File] Menu, select [Save All Data as...]**
  Save with a new File Name.
- **In the [File] Menu, select [Save Displayed Data]**
  Save only that data in the current display. This is handy when you wish to save only the desired data.

EX: [Save All Data as...]

1 Click [Save All Data as...] in the [File] Menu.

2 Specify the [Location] and enter a [File Name].



3 Click [Save] to complete the saving process.

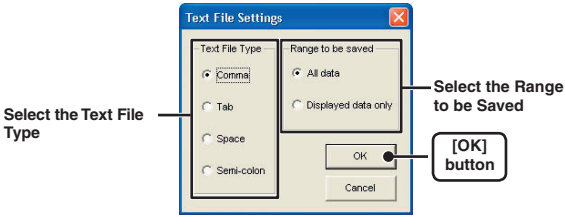
Creating Text File

By saving the recorded data as text file, you can create a file type that can be read by common spreadsheet software.

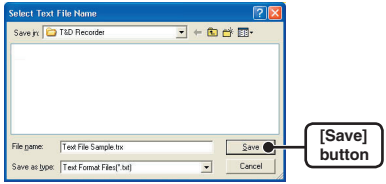
1 Click [Save in Text File] in the [File] Menu.

2 Select the [Text File Type] and [Range to be Saved], and click [OK].

● Comma, Tab, Space, and Semi-colon are codes used by common spreadsheet software, such as Excel and Lotus, when reading Text File to divide cells.



3 Designate the location to which the file should be saved and click [Save] to create and save the data as a Text File document.



● The extension for the created file will be [.txt].

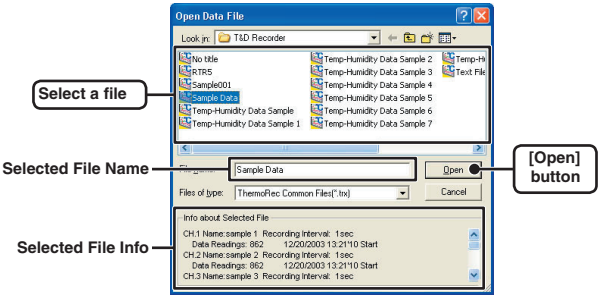
NOTE : Text File cannot be read into T&D for Windows graphs.

Opening Saved Files

To open a previously saved file, designate the file name to open it.

1 Click [Open] in the [File] Menu.

2 Select the name of the data you wish to open and click [Open] to view the data in graph form.



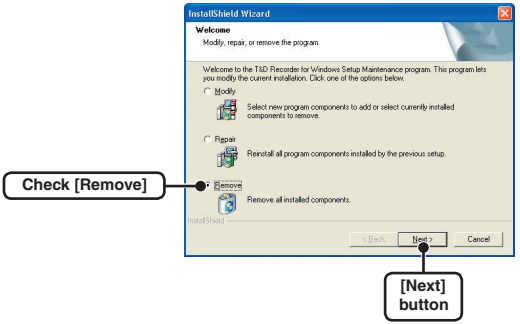
Reinstalling the Softwere

Before reinstalling or updating the software, make sure to carry out the uninstall program first. Before you begin the uninstall program, first make sure to quit all T&D Recorder for Windows programs.

1 In the Windows Control Panel, click on [Add/Remove Programs].

2 From the list of currently installed programs, select [T&D Recorder for Windows] and click the [Add / Remove] button.

3 The [Install Shield Wizard] will appear. Check [Remove], and click [Next].


InstallShield Wizard
Welcome
Modify, repair, or remove the program.
Welcome to the T&D Recorder for Windows Setup Maintenance program. This program lets you modify the current installation. Click one of the options below.
Modify
Select new program components to add or select currently installed components to remove.
Repair
Reinstall all program components installed by the previous setup.
Remove
Remove all installed components.
InstallShield
< Back
Next >
Cancel
Check [Remove]
[Next] button

4 Follow the directions to Uninstall.

5 To reinstall, follow the directions to [Install].

● Even after uninstalling, saved data files will still remain in the folders and locations they were saved in.
Also, saved Remote Unit registration info may still remain. If you wish to delete all of these data and registration files, make sure to delete all of the relevant folders after uninstalling but before reinstalling.

Troubleshooting

Q : The computer won't communicate via the Serial Port. What should I do?

A : Try two or three times to find the port connection by using the Auto-detect function.

A : Check to make sure that the power of the main unit is ON.

A : Check to make sure that the connection is proper. Communication will take place only through the serial port (RS-232C) and will not work through the printer port or any other port.

A : Check to make sure that you can control the Thermo Recorder via the software.

A : If you have access to another computer, try seeing if communication works with the other computer.

A : If you have a computer with energy saving function settings, make sure that the serial port has not been turned off. Especially on NEC brand PC98 notebook computers the default setting maybe such.

A : Check to make sure that the serial port has not been rendered unusable by the BIOS setting.

A : Make sure that the serial port setting has not been made to render the port unusable. With some computers, especially all-in-one computers the serial port serves as the modem jack.

【How to check】

① View in the Device Manager Window.

For Windows XP or 2000

1. On the Desktop, right click on [My Computer] and click on [Properties].
2. In the System Properties Window, click on the [Hardware] Tab, then click on the [Device Manager] button to view the Device Manager Window.

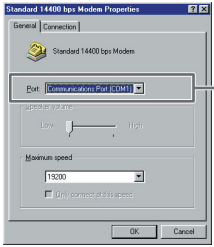
For Windows XP or 98

1. Open the [Control Panel] and double click on [System] to display the [System Properties].
2. Click the [Device Manager] Tab to view the Device Manager Window.

② In the [Device Manager], click on [Port (COM&LPT)] and check to see if under that appears [Com Port (COM1)] or [Com Port (COM2)].
If a port appears, it should be usable.

- If a mark「!」or「×」appears next to the port, this communication port is unusable. If you cannot use a communication port please contact your computer company.
- To find out more details about an unusable communication port:
  Select the port with a「!」mark, and then click on [Properties] to view the details about that port.

A : If your computer has an internal modem, make sure that the communication port is not being used by it. When the communication port is being used as the modem port, that port cannot be used. Either quit using the modem or use another port.



※ An example of the modem using a communication port (COM 1).

A : If your computer has no serial port, use a Serial-USB conversion cable and carry out communication via USB connection. We recommend「I.O DATA USB-RSAQ2」and「ELECOM UC-SGT」Serial-USB conversion cables. If you are using an NEC Lavie J Notebook Computer(NEC LJ-500), please use「I.O DATA USB-RSAQ2」

A : Sometimes communication will not work if a switch has been added to the serial port (RS-232C) or an extension cable has been added to the communication cable.

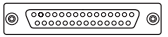
A : Check to see if some other communication software is in use.

A : If your desktop computer has two serial ports, try connecting the communication cable to the other port and try communicating again.

Q : **I can't get the communication cable connected to the computer. What should I do?**

A : Please connect the communication cable provided with the Thermo Recorder into the serial port of your computer (D-SUB 9 pin male connector). If for some reason you cannot connect directly, please use an appropriate adapter (gender changer plug) as explained below.

《D-SUB 9 pin male》



《D-SUB 25 pin female》

《Half pitch 14 pin female》

- If the connector on your computer is a D-SUB 9 pin male then there is no need for an adapter.
- If the connector on your computer is a D-SUB 25 pin female then use an adapter (D-SUB 25 pin male to a D-SUB 9 pin male).
- If the connector on your computer is a Half pitch 14 pin female then use the adapter (Half pitch 14 pin male to a D-SUB 9 pin male) or a combination (Half pitch 14 pin male to D-SUB 25 pin male) and (D-SUB 25 pin female to a D-SUB 9 pin male).

Q : **The date and the time of the recorded data are different from the actual date and time. Why?**

A : The Thermo Recorder has no internal clock. When you set up a programmed recording start or when you download data, the date and time that are shown are taken form your computer' s clock. If your computer' s clock is not correct, it will affect the recorded data.

TR-7xU : Specifications

Compatible Devices	**TR-71U・TR-72U**
Communication Functions	Recording Start (Immediate Start/Programmed Start)・Recording Stop・Main Unit Settings (Recording Interval・Recording Method・Upper and Lower Limits・Permission to Start Recording by Wireless Communication)・ Downloading of Recorded Data
Temp/Humidity Graph	
Graph	Temp/Humidity Graphs for Each Channel (Zoom out/in and scroll)・Change Channel Colors・Turn ON and OFF Channel Display
Data Display	Channel Name・Recording Interval・Number of Readings・Highest, Lowest and Average Reading・Unit of Measurement・AB Cursor Dates/Times and Data Readings・Calculated Difference between Cursor A and B
Number of Channels	8 Channel Simultaneous Display and Processing Possible to process mixed data from TR-71U and TR-72U units. (up to 4units.)
Others	Data List Display・Calculation Range Settings・Data Maintenance・Edit Recording Conditions・Delete Data by Channel・Re-order Data by Channel
Others	Serial Port Auto Find Function
File Output	T&D Common Data File・Text File (CSV, etc)・ (Selected Range or File for Entire Period)
Printing	Graphs / Tables
Compatible	
OS	Microsoft Windows® 98 / Me Microsoft Windows® NT 4.0 (USB communication not possible) Microsoft Windows® 2000 / Xp
PC/CPU	IBM Compatible with higher than Pentium 90MHz Serial Port (RS232-C D-sub 9pin)
Memory	More than 16 MB
Hard Disk	More than 4MB of free space (Data will need more space)
Monitor	VGA (640 × 480) more than 256 colors

TR-5 : Specifications

Compatible Devices	**TR-51A・TR-52・TR-50C・TR-51・TR-71U・TR-72U**
Communication Functions	Recording Start (Immediate Start/Programmed Start)・Recording Stop 本体設定値読み込み (Channel Name・記録間隔・Recording mode 設定可能) Downloading of Recorded Data
Temp/Humidity Graph	
Graph	Temp/Humidity Graphs for Each Channel (Zoom out/in and scroll)・Change Channel Colors・Turn ON and OFF Channel Display
Data Display	Channel Name・Recording Interval・Number of Readings・Highest, Lowest and Average Reading・Unit of Measurement・AB Cursor Dates/Times and Data Readings・Calculated Difference between Cursor A and B
Number of Channels	8 channels simultaneous display and processing possible to process a mixture of up to 4 units of TR-7U, 8 units of TR-5
Others	Data List Display・Calculation Range Settings・Data Maintenance・Edit Recording Conditions・Delete Data by Channel・Re-order Data by Channel
Others	Serial Port Auto Find Function
File Output	T&D Common Data File・Text File (CSV, etc)・ (Selected Range or File for Entire Period)
Printing	Graphs / Tables
Compatible	
OS	Microsoft Windows® 98 / Me Microsoft Windows® NT 4.0 (USB communication not possible) Microsoft Windows® 2000 / Xp
PC/CPU	IBM Compatible with higher than Pentium 90MHz Serial Port (RS232-C D-sub 9pin)
Memory	More than 16 MB
Hard Disk	More than 4MB of free space (Data will need more space)
Monitor	VGA (640 × 480) more than 256 colors

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T&D Recorder for Windows User's Manual

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